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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/735,036	12/12/2003	Kenneth D. McKibben	HAYES P23US0	2467

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EXAMINER
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KERNS, KEVIN P

ART UNIT	PAPER NUMBER
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1725

DATE MAILED: 10/01/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/735,036

Applicant(s)

MCKIBBEN ET AL.

Examiner

Kevin P. Kerns

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 12 December 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☒ Claim(s) 1,2 and 5 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 December 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☒ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 3/9/04.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Oath/Declaration***

1. The oath or declaration is defective. A new oath or declaration in compliance with 37 CFR 1.67(a) identifying this application by application number and filing date is required. See MPEP §§ 602.01 and 602.02.

The oath or declaration is defective because:  
It does not identify the citizenship of each inventor (in this instance, the first inventor's citizenship is not identified).

### ***Drawings***

2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: "30" and "58" of Figure 1. Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Claim Objections***

3. Claims 1, 2, and 5 are objected to because of the following informalities: in claim 1, 5<sup>th</sup> line, "the" should be changed to "a" before "sand hopper" to obtain proper antecedent basis. In claim 2, 2<sup>nd</sup> line, "a" should be added before "core cavity". In claim 2, 3<sup>rd</sup> line, "the" should be deleted before "unused" to obtain proper antecedent basis. In claim 5, 2<sup>nd</sup> line, "the loader" should be changed to "unloader" before "transfer". Appropriate correction is required.

***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Kawai (US 3,939,899).

Kawai discloses a shell molding machine (provided with a heater/burner manifold in the form of setting plate 10 to provide heat to sand cores) and a method of casting and curing sand cores, in which the method includes the steps of filling a blow head car 17 of a movable blow head 18 with sand from hopper 25; moving the blow head 18 (via rails 20 engaging the rollers 17' of blow head car 17) away from the sand hopper 25 and towards a core box (1,1a,2) that is locked (vertically and horizontally) in position by

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stopper cylinder assembly 33 and locking rods 33', wherein the blow head 18 becomes aligned in position with a blow valve in the form of a piston cylinder assembly 21 provided with a compressed air reservoir, thus filling/blowing sand through blow plate 19 of the blow head car 17 and into the core box (1,1a,2) prior to retracting the blow head 18 and ejecting/separating the cope and drag cores from the core box to a core unloader table 13 (abstract; column 2, lines 25-68; column 3, lines 1-68; column 4, lines 1-53; and Figures 1-4).

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

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8. Claims 2-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawai (US 3,939,899) in view of Witt (US 4,620,584).

Kawai discloses the elements of claim 1 above. Kawai does not specifically disclose the use of a vacuum manifold in the shell molding machine.

However, Witt discloses a sand mold filling system, in which the filling system includes vacuum means 40 and manifold (header/duct 36) connected at a bottom opening 34 of sand filled flask 28, in which the vacuum manifold is advantageous for assisting sand flow and for obtaining improved densification and compacting of the sand in the flask (abstract; column 1, lines 60-68; column 2, lines 1-47 and 66-68; column 3, line 1 through column 5, line 3; and Figures 1-3).

It would have been obvious to one of ordinary skill in the art at the time the applicants' invention was made to modify the shell molding machine and method of casting and curing sand cores, as disclosed by Kawai, by adding the vacuum manifold onto the sand mold system, as taught by Witt, in order to assist sand flow and to obtain improved densification and compacting of the sand in the flask (Witt; abstract; column 2, lines 8-20 and 40-47; and column 4, lines 23-35).

### ***Conclusion***

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US 4559989, US 4711292, US 4832108, US 5242008, US 5365995, JP 58-32542, JP 61-206547, and EP 0 443 287 are also cited in PTO-892.

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10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dr. Kevin P. Kerns whose telephone number is (571) 272-1178. The examiner can normally be reached on Monday-Friday from 8:00am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Dunn can be reached on (571) 272-1171. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Kevin P. Kerns *Kevin Kerns 9/28/04*  
Examiner  
Art Unit 1725

*KPK*  
kpk

September 28, 2004